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ABSTRACT:

PROBLEM TO BE SOLVED: To obtain a polyphenylene ether-based resin composition having excellent dart impact property and appearance, no release and excellent balance between tensile properties and heat resistance.

SOLUTION: The polyphenylene ether-based resin composition is obtained by mixing 100 parts wt. of a resin component composed of (a) 30-99 parts wt. of a polyphenylene ether-based resin and (b) 70-1 part wt. of a liquid-crystal polyester with (c) 0.1-10 parts wt. of a cyclic nitrogen compound.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention is excellent in a dirt impact property and an appearance, does not have \*\* to vomit, and relates to the polyphenylene ether system resin constituent which was further excellent in the balance of tractive characteristics and thermal resistance.

[0002]

[Description of the Prior Art] Generally, as for polyphenylene ether, it has a fault, like thermal resistance, being hot water resistance, being dimensional stability, and although it is mechanical and resin which has the outstanding properties, such as an electrical property, since the melt viscosity is high, on the other hand, shock resistance with bad chemical resistance with a bad and moldability is low. In order to improve such a fault of polyphenylene ether, alloy-izing with polyphenylene ether and other resin or denaturation of polyphenylene ether has been performed from the former.

[0003] For example, although the technique of adding the hydrogenation object of high impact polystyrene, an aromatic series vinyl compound-conjugated diene compound block copolymer, and an aromatic series vinyl compound-conjugated diene compound block copolymer etc. had been taken in order to raise the shock resistance of polyphenylene ether, all reduce the thermal resistance of polyphenylene ether and were not enough in heat-resistant and shock-proof balance. Moreover, although the technique of alloy-izing with polystyrene, liquid crystal polyester, etc. had been taken in order to raise the fluidity of polyphenylene ether, shock resistance, especially a dirt impact property fell, and were not enough in fluid and shock-proof balance.

[0004] Moreover, although JP,5-171016,A had the proposal of polyester system resin excellent in thermal resistance, impact strength, etc., and a polyphenylene ether system resin constituent, in an appearance, or shock resistance, especially dirt impact nature, it was not enough. Moreover, although it was proposed that fire retardancy improves according to concomitant use of silicone and a nitrogen content compound to polyphenylene ether system resin at JP,2001-200164,A, in a dirt impact property and thermal resistance, it was not enough.

[0005]

[Problem(s) to be Solved by the Invention] This invention is offering the polyphenylene ether system resin constituent which is excellent in a dirt impact property and an appearance, does not have \*\* to vomit, and was further excellent in the balance of tractive characteristics and thermal resistance.

[0006]

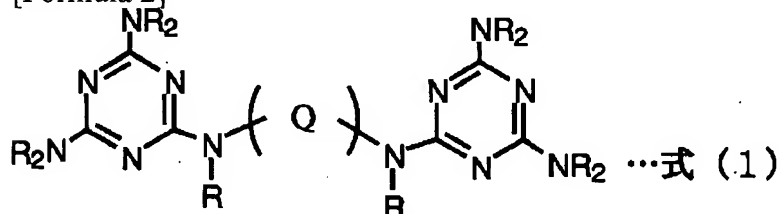
[Means for Solving the Problem] As a result of examining wholeheartedly the technique of attaining the above-mentioned technical problem, this invention person does not have \*\* which it excels and is vomited at a dirt impact property and an appearance by adding the nitrogen content compound of specific structure in polyphenylene ether system resin and liquid crystal polyester, finds out that the polyphenylene ether system resin constituent which was further excellent in the balance of tractive characteristics and thermal resistance is obtained, and came to complete this invention.

[0007] This invention Namely, 1.(a) polyphenylene ether system resin 30 - 99 weight sections, (b) As

opposed to the resinous principle 100 weight section which consists of liquid crystal polyester 70 - the 1 weight section (c) The polyphenylene ether system resin constituent obtained by blending the annular nitride 0.1 - 10 weight sections, 2. The above 2 to which a resin constituent given in the above 1 characterized by an annular nitride being a melamine derivative and 3. melamine derivative consider having the structure of the following formulas (1) as the description is provided with the resin constituent of a publication.

[0008]

[Formula 2]



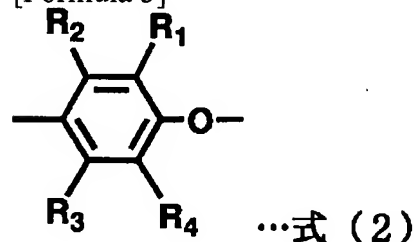
[0009] (Here, R is chosen from a hydrogen atom or the hydrocarbon group to carbon numbers 1-20, and even if all R is the same, it may consist of two or more radicals.) Q is chosen from the hydrocarbon group to carbon numbers 1-20.

[0010]

[Embodiment of the Invention] Hereafter, the invention in this application is explained concretely. (a) polyphenylene ether system resin of this invention is the gay polymer and/or copolymer which consist of repeat unit structure of a formula (2).

[0011]

[Formula 3]



[0012] (R1 and R4 express the low-grade alkyl of hydrogen, the first class, or the second class, phenyl, amino alkyl, and hydrocarbon OKISHI independently, respectively.) R2 and R3 express the low-grade alkyl of hydrogen, the first class, or the second class, and phenyl independently, respectively.

[0013] The range of the desirable reduced viscosity (0.5g / dl, a chloroform solution, 30-degree-C measurement) of polyphenylene ether system resin is 0.40-0.60 most preferably 0.20 to 0.70 dl/g still more preferably 0.15 to 1.0 dl/g. As a concrete example of this polyphenylene ether system resin Pori (2, the 6-dimethyl -1, 4-phenylene ether), Pori (2-methyl-6-ethyl -1, 4-phenylene ether), Pori (the 2-methyl-6-phenyl -1, 4-phenylene ether), Pori (2, 6-dichloro -1, 4-phenylene ether) etc. is mentioned.

Furthermore, a polyphenylene ether copolymer like the copolymer of 2 and 6-dimethylphenol and other phenols (for example, 2, 3, a 6-trimethyl phenol and 2-methyl-6-butylphenol) is also mentioned.

Especially, the copolymer of Pori (2, 6-dimethyl -1, 4-phenylene ether), 2, and 6-dimethylphenol and a 2, 3, and 6-trimethyl phenol is desirable, and Pori (2, the 6-dimethyl -1, 4-phenylene ether) is still more desirable.

[0014] As an example of the manufacture approach of (a) polyphenylene ether used by this invention, there is the approach of carrying out the oxidation polymerization of the 2 and 6-xlenol, using cuprous salt given in a U.S. Pat. No. 3306874 description, and the complex of an amine as a catalyst. The approach indicated by each official report of the description of U.S. Pat. No. 3306875, 3257357, and 3257358, JP,52-17880,B, JP,50-51197,A, and 63-152628 etc. is also desirable as the manufacture approach of (a) polyphenylene ether. (a) polyphenylene ether system resin of this invention may be used

with the powder after a polymerization stroke, and may be pelletized and used using an extruder etc. by carrying out melting kneading under nitrogen-gas-atmosphere mind or non-nitrogen-gas-atmosphere mind, devolatilization, or un-devolatilizing.

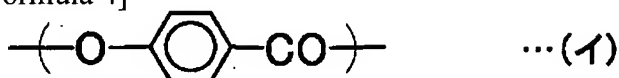
[0015] The polyphenylene ether by which (a) polyphenylene ether system resin of this invention was organic-functions-ized with various dienophile compounds is also contained. Compounds, such as a maleic anhydride, a maleic acid, a fumaric acid, phenyl maleimide, an itaconic acid, an acrylic acid, a methacrylic acid, a methyl ant rate, methyl methacrylate, glycidyl acrylate, glycidyl methacrylate, stearylacrylate, and styrene, are mentioned to various dienophile compounds. You may organic-functions-ize in the state of melting under devolatilization or un-devolatilizing under radical generating agent existence or nonexistence, using an extruder etc. as an approach of furthermore organic-functions-izing with these dienophile compound. Or under radical generating agent existence or nonexistence, you may organic-functions-ize in the temperature requirement below beyond an unmelting condition, i.e., a room temperature, and the melting point. Under the present circumstances, in measurement of a differential heat scanning calorimeter (DSC), the melting point of polyphenylene ether is defined by the peak top temperature of the peak observed in the temperature-heat flow graph obtained when carrying out temperature up by part for 20-degree-C/, and when there is two or more peak top temperature, it is defined by the highest temperature of them.

[0016] It is the mixture of a polyphenylene ether resin independent or polyphenylene ether resin, and an aromatic series vinyl system polymer, and that with which the resin of further others was mixed is also contained in (a) polyphenylene ether system resin of this invention. With an aromatic series vinyl system polymer, atactic polystyrene and syndiotactic polystyrene, high impact polystyrene, an acrylonitrile styrene copolymer, etc. are mentioned. the case where the mixture of polyphenylene ether resin and an aromatic series vinyl system polymer is used -- the total quantity of polyphenylene ether resin and an aromatic series vinyl system polymer -- receiving -- polyphenylene ether resin -- more than 70wt% -- desirable -- more than 80wt% -- it is more than 90wt% still more preferably.

[0017] (b) liquid crystal polyester of this invention is polyester called a thermotropic liquid crystal polymer, and can use a well-known thing. For example, the thermotropic liquid crystal polyester which makes a thermotropic liquid crystal polyester [ which makes the thermotropic liquid crystal polyester, the para hydroxybenzoic acid, and the 2-hydroxy-6-naphthoic acid which make para hydroxybenzoic acid and polyethylene terephthalate the main configuration unit the main configuration unit ], para-hydroxybenzoic-acid and 4, and 4'-dihydroxy biphenyl, and a terephthalic acid the main configuration unit is mentioned, and there is especially no limit. What consists of (d) as (b) liquid crystal polyester used by this invention following structural unit (\*\*), (\*\*), and if needed is used preferably.

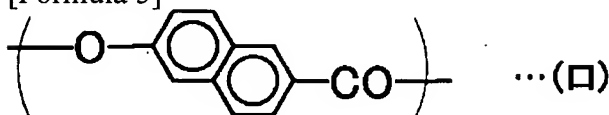
[0018]

[Formula 4]



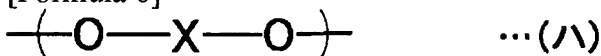
[0019]

[Formula 5]



[0020]

[Formula 6]



[0021]

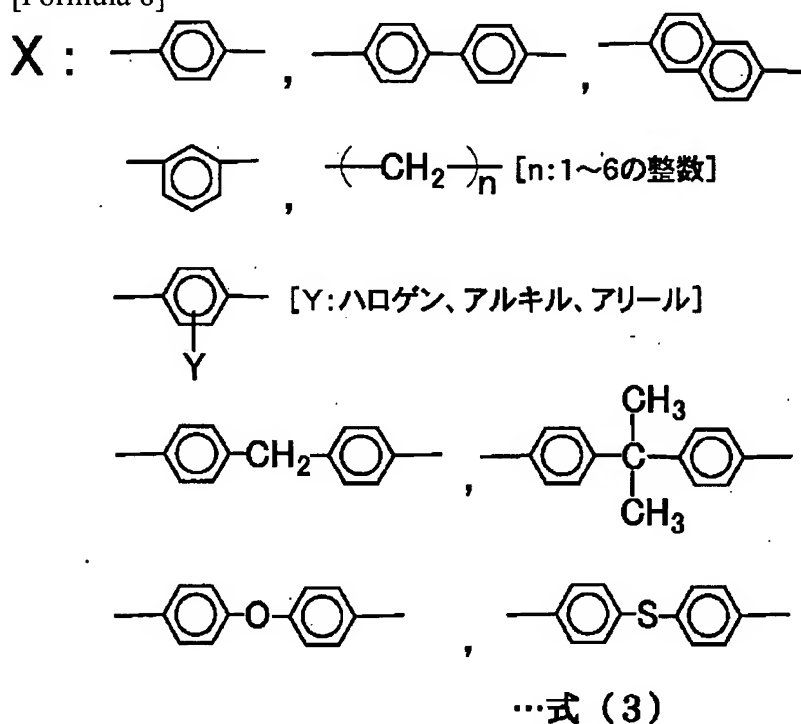
[Formula 7]



[0022] Here, structural unit (b) and (b) are the structural unit of the polyester generated from para hydroxybenzoic acid, and the structural unit generated from the 2-hydroxy-6-naphthoic acid, respectively. The thermoplastics constituent of this invention excellent in the balance of mechanical properties, such as thermal resistance and a fluidity excellent in using structural unit (b) and (b), and rigidity, can be obtained. the above-mentioned structural unit (Ha) and (\*\*) -- inner X -- the following type (3) -- respectively -- arbitration -- one sort -- or two or more sorts can be chosen.

[0023]

[Formula 8]



[0024] In a structure expression (Ha), an ethylene glycol, hydroquinone, 4, and 4'-dihydroxy biphenyl, 2, 6-dihydroxy naphthalene, and the structural unit generated from each bisphenol A are desirable, an ethylene glycol, 4, and 4'-dihydroxy biphenyl and hydroquinone are still more desirable, and especially a desirable thing is an ethylene glycol, 4, and 4'-dihydroxy biphenyl. In structure-expression (d), the structural unit generated from each terephthalic-acid, isophthalic acid, 2, and 6-dicarboxy naphthalene is desirable, and a terephthalic acid and isophthalic acid are still more desirable.

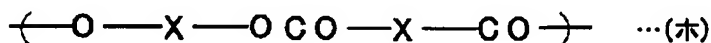
[0025] A structure expression (Ha) and structure-expression (d) can use together at least one sort or two sorts or more for the structural unit mentioned above. When using two or more sorts together, specifically, the structural unit generated in the structure expression (Ha) from the structural unit [ which was generated from the structural unit / which was generated from the structural unit/hydroquinone generated from 1 ethylene glycol /, structural unit / which was generated from 2 ethylene glycol / / 4, and 4'-dihydroxy biphenyl ], structural unit [ which was generated from 3 hydroquinone ] / 4, and 4'-dihydroxy biphenyl can be mentioned.

[0026] Moreover, in structure-expression (\*\*), the structural unit generated from structural unit [ which was generated from the structural unit/isophthalic acid generated from 1 terephthalic acid ], structural unit [ which was generated from 2 terephthalic acids ] / 2, and 6-dicarboxy naphthalene can be mentioned. here -- the amount of terephthalic acids -- the inside of 2 components -- desirable -- more than 40wt% -- further -- desirable -- more than 60wt% -- it is more than 80wt% especially preferably. By making the amount of terephthalic acids more than 40wt% among 2 components, a fluidity and

thermal resistance serve as a good resin constituent in comparison. Structural unit (\*\*) in the liquid crystal (polyester b) component, (\*\*), (Ha), and especially activity division of (d) are not limited. However, a structural unit (Ha) and (d) serve as an equimolecular amount mostly fundamentally. [0027] Moreover, structural unit (Ha) and structural unit [ which consists of (\*\*) ] (\*\*) can also be used as a structural unit in the (b) component. Specifically, the structural unit generated from a structural unit [ which was generated from 1 ethylene glycol and a terephthalic acid ], structural unit [ which was generated from 2 hydroquinone and a terephthalic acid ], 3,4- and 4',4'-dihydroxy biphenyl, a structural unit [ which was generated from the terephthalic acid ], 4,4'- and 4',4'-dihydroxy biphenyl, and isophthalic acid, the structural unit generated from 5 bisphenol A and a terephthalic acid can be mentioned.

[0028]

[Formula 9]



[0029] The structural unit generated from other aromatic series dicarboxylic acid, aromatic series diol, and aromatic series hydroxycarboxylic acid can be introduced into (b) liquid crystal polyester component of this invention in the little range of extent which does not spoil the description and effectiveness of this invention if needed. 150-350 degrees C (henceforth liquid crystal initiation temperature) of temperature which begins to show the liquid crystal condition in the time of melting of the (b) component of this invention are 180-320 degrees C still more preferably preferably. Making liquid crystal initiation temperature into this range makes [ of a desirable color tone and thermal resistance, and fabricating-operation nature balance ] good the resin constituent obtained.

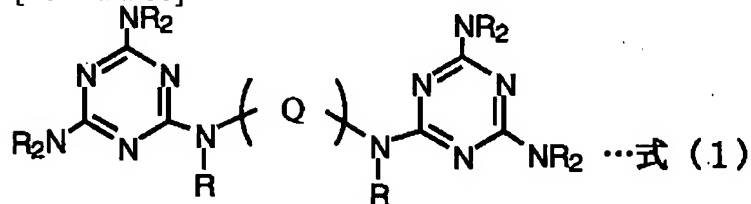
[0030] The dielectric dissipation factor (tan $\delta$ ) in 25 degrees C of (b) liquid crystal polyester component of this invention and 1MHz is 0.03 or less preferably, and is 0.025 or less still more preferably. As the value of this dielectric dissipation factor is small, the electrical noise to generate is controlled and dielectric loss is more desirable, when becoming small and using this resin constituent as a raw material of the electrical and electric equipment and electronic parts. A dielectric dissipation factor (tan $\delta$ ) is 0.03 or less preferably, and is 0.025 or less still more preferably especially in the bottom of 25 degrees C and a high-frequency field, i.e., a 1-10GHz field.

[0031] the melt viscosity (it is a 100/second of shear rates at the liquid crystal initiation temperature of +30 degrees C) of the appearance of (b) liquid crystal polyester component of this invention -- desirable -- 10-3,000Paands -- they are 10-1,000Paands especially preferably ten to 2,000 Pa-s still more preferably. Making apparent melt viscosity into this range makes the fluidity of the constituent obtained desirable. The thermal conductivity in the melting condition (liquid crystal condition) of the (b) component of this invention is 0.3 - 1.0 W/mK especially preferably 0.2 to 1.5 W/mK still more preferably 0.1 to 2.0 W/mK preferably. By making the thermal conductivity in a melting condition (liquid crystal condition) into this range, the injection molding cycle of the constituent obtained can be shortened comparatively.

[0032] Next, (c) annular nitride in this invention is explained. (c) An annular nitride is an annular organic compound containing a nitrogen element. Specifically, a melamine derivative is mentioned. The compound shown by the melamine, MEREMU, the melon, or the following formula (1) is illustrated.

[0033]

[Formula 10]



[0034] (Here, R is chosen from a hydrogen atom or the hydrocarbon group to carbon numbers 1-20, and

even if all R is the same, it may consist of two or more radicals.) Q is chosen from the hydrocarbon group to carbon numbers 1-20.

The compound especially shown by the formula (1) from a viewpoint of dirt impact nature is desirable. In especially a formula (1), the hydrogen atom of R is desirable. And ethylene, propylene radical, butylene radical, and hexylene radical \*\* of Q is desirable, and its ethylene is more more desirable still. [0035] The loadings of (a) polyphenylene ether system resin in this invention are 30 - 99 weight section, are 50 - 98 weight section preferably, and are 70 - 97 weight section still more preferably. A fluidity is not enough if there are more these loadings than 99 weight sections. When there are few these loadings than 30 weight sections, there is an inclination for specific gravity to become large and for cost to become high further. The loadings of the liquid crystal polyester of the (b) component in this invention are 70 - 1 weight section, are 50 - 2 weight section preferably, and are 30 - 3 weight section still more preferably. If there are more these loadings than 70 weight sections, specific gravity will become large and it will cause the cost high. Sufficient fluidity will not be acquired if there are few these loadings than 1 weight section.

[0036] The content of (c) annular nitride used by this invention is 0.1 - 10 weight section to the total quantity 100 weight section of the (a) component and the (b) component, is 0.2 - 5 weight section preferably, and is 0.5 - 3 weight section still more preferably. If fewer than the 0.1 weight section, sufficient shock resistance will not be obtained, but when there are more these loadings than 10 weight sections, they have the inclination for thermal resistance to fall.

[0037] In this invention, the need is accepted in the range which does not spoil the above-mentioned description and the effectiveness of this invention other than a component. Other addition-components, for example, an anti-oxidant and an elastomer (ethylene/propylene copolymer --) Ethylene / 1-butene copolymer, ethylene / propylene / nonconjugated diene copolymer, Ethylene / ethyl-acrylate copolymer, ethylene / glycidyl methacrylate copolymer, Ethylene / vinyl acetate / glycidyl methacrylate copolymer, and ethylene / propylene-g-maleic-anhydride copolymer, Olefin system copolymers, such as ABS, a polyester polyether elastomer, A polyester polyester elastomer, a vinyl aromatic compound-conjugated diene compound block copolymer, The hydrogenation object of a vinyl aromatic compound-conjugated diene compound block copolymer, Plasticizers, such as oil, low molecular weight polyethylene, epoxidized soybean oil, a polyethylene glycol, and fatty acid ester, a weatherability (light) nature amelioration agent, the nucleating agent for polyolefines, a slipping agent, various coloring agents, a release agent, etc. may be added.

[0038] Moreover, an inorganic bulking agent may be added. As this inorganic bulking agent, inorganic compounds, such as a glass fiber, a metal fiber, potassium titanate, a carbon fiber, silicon carbide, a ceramic, silicon nitride, a mica, nepheline SHINAITO, talc, wollastonite, slag fiber, a ferrite, a glass bead, glass powder, glass balun, a quartz, and quartz glass, are raised as an on-the-strength grant agent. Especially, a glass fiber and a carbon fiber are preferably used from the balance of fluidity, thermal-resistance, and mechanical characteristic \*\*, and a glass fiber is used still more preferably. The configuration of the bulking agent of these inorganic system is not limited, and the shape of fibrous, tabular, and a ball etc. can choose it as arbitration.

[0039] Moreover, the bulking agent of these inorganic systems can also use two or more kinds together. Moreover, it can be used by coupling agents, such as a silane system and a titanium system, if needed, carrying out conditioning. The resin constituent of this invention can be manufactured by various approaches. For example, although the heating melting kneading approach by a single screw extruder, a twin screw extruder, the roll, the kneader, the Brabender plastograph, a Banbury mixer, etc. is mentioned, the melting kneading approach of having used the twin screw extruder especially is the most desirable. Although especially the melting kneading temperature in this case is not limited, it can usually be chosen as arbitration from 150-350 degrees C.

[0040] Thus, the resin constituent of this invention obtained can be fabricated as a Plastic solid of various components by various approaches better known than before, for example, injection molding, extrusion molding, and blow molding. Especially these Plastic solids are suitable for the application as which fire retardancy and thermal resistance are required, for example, the heat-resistant components for



automobiles, and business-machine dexterous heatproof components. The heat-resistant components for automobiles For example, an AC-dynamo terminal, an AC-dynamo connector, An I.C. regulator, the potentiometer base for light DIYA, Various bulbs, such as an exhaust gas bulb, fuel relation / exhaust air system and inhalation-of-air system various pipes, An air intake nozzle snorkel, an intake manifold, a fuel pump, An engine-cooling-water fastener, a carburetor main body, a carburetor spacer, An exhaust air gas sensor, a cooling water sensor, an oil-temperature sensor, a brake putt weir sensor, A throttle position sensor, a crankshaft position sensor, An air flow meter, a brake vat wear sensor, the thermostat base for air-conditioners, A heating warm air flow control valve, the brush electrode holder for radiator motors, A water-pump impeller, turbine \*\* Inn, windshield-wiper-motor relation components, DEYUSUTORIBYUTA, starter SUITCHI, a starter relay, the wire harness for transmission, A window washer nozzle, an air-conditioner panel SUITCHI substrate, the coil for fuel relation electromagnetism valves, The connector for fuses, a horn terminal, an electric equipment article electric insulating plate, a step motor rotor, Components, such as a brake piston, a solenoid bobbin, an engine oil filter, and an ignition case, a wheel cap, a lamp socket, a lamp housing, a lamp extension, a lamp reflector, etc. are suitable. The lamp extension from the balance of lightweight nature, thermal resistance, fire retardancy, and a mechanical characteristic and a lamp reflector are suitable especially. Moreover, business-machine dexterous heatproof components are suitable for the home represented by for example, air-conditioner components, typewriter components, word processor components, etc., clerical work electrical-and-electric-equipment product components, an office computer associated part, a telephone associated part, a facsimile associated part, a copying machine associated part, etc.

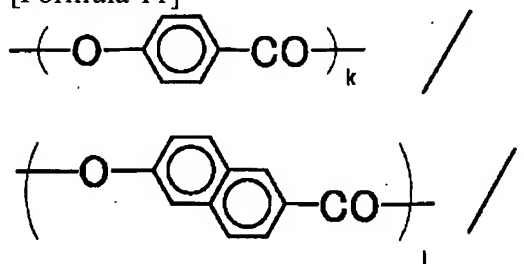
[0041] This invention is hereafter explained based on an example. However, this invention is not limited to the following examples, unless the main point is exceeded.

(Example 1 of manufacture) It is Pori (2, the 6-dimethyl -1, 4-phenylene ether) of the shape of the example 2 of manufacture of polyphenylene ether (PPE-1), and powder of the reduced viscosity 0.42 which carried out the oxidation polymerization of the 6-dimethylphenol, and obtained it.

(Example 2 of manufacture) Para hydroxybenzoic acid, the 2-hydroxy-6-naphthoic acid, and the acetic anhydride were taught to the bottom of the example nitrogen-gas-atmosphere mind of manufacture of liquid crystal polyester (LCP-1), heating fusion was carried out, and the liquid crystal polyester (LCP-1) which has the following theoretical structure expressions was obtained by carrying out a polycondensation. In addition, the component ratio of a presentation expresses a mole ratio.

[0042]

[Formula 11]



$$k/l = 0.73/0.27$$

[0043] Shaping and physical-properties assessment of each resin constituent were carried out according to the following approaches.

(1) it fabricated using the injection molding machine [IS-80EPN:Toshiba Machine [ Co., Ltd. ] Co., Ltd. make] which set the shaping profit \*\*\*\* pellet as cylinder-temperature 330/330/320/310 degree C, \*\*\*\* of 85%, and the die temperature of 90 degrees C.

[0044] (2) The plate-like shaping piece with shock-proof (a dirt impact and ductile fracture) die length of 90mm, a width of face [ of 50mm ], and a thickness of 2.5mm was fabricated, it measured in the drop load of 6.5kg, and drop height of 100cm using the dirt impact circuit tester (Product made from an Oriental energy machine), and the value of the general absorption energy which is the sum of the crack



energy in the case of destruction and propagation energy was made into the dirt impact (J). The larger one means excelling in shock resistance. Moreover, when the plate test piece after a breakdown test is seen from thickness, ductile fracture and completeness hollow what is deforming as the part into which the dead weight fell was prolonged, there is no deformation, and a flat thing is defined as a brittle fracture. Ductile fracture nature was judged based on the following decision criteria.

Repeatability of ductile fracture: x/5 x: Count which carried out ductile fracture among five counts of a trial.

[0045] (3) The plate-like shaping piece of the existence above (2) of \*\* to vomit was made to fracture with scissors, the fracture surface was observed visually, and the existence of \*\* was judged based on the following decision criteria.

O : the fracture surface be smooth. (It means that there is no \*\* to vomit.)

x: The fracture surface has split finely. (It means that there is \*\* to vomit.)

(4) The front face of the plate-like shaping piece of the account of an exterior (2) was observed visually, and the appearance was judged based on the following decision criteria.

O : a rough deposit and sill burst RIKUSU are not accepted in a front face at all.

x: A rough deposit or sill burst RIKUSU is accepted in a front face.

[0046] (5) It examined using the tractive-characteristics autograph (AG-5000, Shimadzu Corp. make) and the ASTM dumbbell specimen with a thickness of 3.2mm by having pulled by the distance between chucks of 115mm, and test period 20 mm/min, and tensile strength (TS (MPa)) and elongation after fracture (E (%)) were measured.

(6) Thermal resistance (HDT)

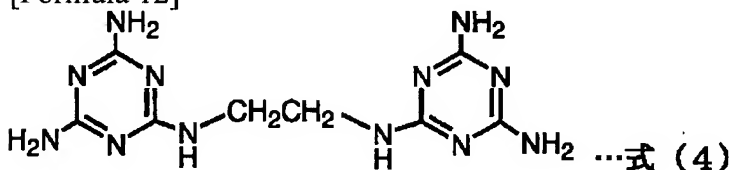
The heating deformation temperature under a 1.82MPa load was measured using the full automatic HDT testing machine (Product made from an Oriental energy machine, 6A-2), and the ASTM TANZAKU test piece with a thickness [ of 3.2mm ] x die-length [ of 127mm ] x width of face of 12.7mm.

[0047]

[Example 1] It blended at a rate (weight section) shown in a table 1, melting kneading was carried out using the twin screw extruder with a vent port (product made from ZSK-25; WERNER&PFLEIDERER) set as 250-300 degrees C, and polyphenylene ether (PPE-1), liquid crystal polyester (LCP-1), and an annular nitride (the Hakkooru Chemical make, a Shigenox OWP technical grade, formula (4)) were obtained as a pellet. Using this pellet, by the approach shown above, the fabricating operation was carried out and physical-properties assessment was carried out. The result was shown in a table 1.

[0048]

[Formula 12]



[0049]

[The example 1 of a comparison] Except having not used an annular nitride, it carried out like the example 1, the fabricating operation was carried out, and physical-properties assessment was carried out. The result was shown in a table 1.

[0050]

[The example 2 of a comparison] Instead of the annular nitride, except having used polyamides 6 and 6 (the Asahi Chemical Co., Ltd. make, Reona 1300S), it carried out like the example 1, the fabricating operation was carried out, and physical-properties assessment was carried out. The result was shown in a table 1.

[0051]

[A table 1]

|    |           | 実施例1     | 比較例1 | 比較例2 |      |
|----|-----------|----------|------|------|------|
| 組成 | (a) PPE-1 | 95       | 95   | 95   |      |
|    | (b) LCP-1 | 5        | 5    | 5    |      |
|    | (c) N-1   | 1        |      |      |      |
|    | PA-1      |          |      | 1    |      |
| 物性 | 耐衝撃性      | ダート衝撃(J) | 46.0 | 5.0  | 12.0 |
|    |           | 延性破壊の再現性 | 5/5  | 0/5  | 1/5  |
|    | はくりの有無    |          | ○    | ×    | ×    |
|    | 外観        |          | ○    | ×    | ×    |
|    | 引張り強度     | TS(MPa)  | 76.5 | 75.5 | 72.6 |
|    | 破断伸び      | E(%)     | 67.0 | 29.0 | 37   |
|    | 耐熱性       | HDT(℃)   | 177  | 184  | 183  |

[0052]

[Effect of the Invention] It excelled in the dirt impact property and the appearance, and there was no \*\* to vomit and this invention enabled it to offer the polyphenylene ether system resin constituent which was further excellent in the balance of tractive characteristics and thermal resistance.

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[Translation done.]